POSTER 120

LECTIN AFFINITY BINDING OF PSEUDONONAS AERUGINOSA WITH POLYACRYLAMIDE NEOGLYCOCONJUGATES

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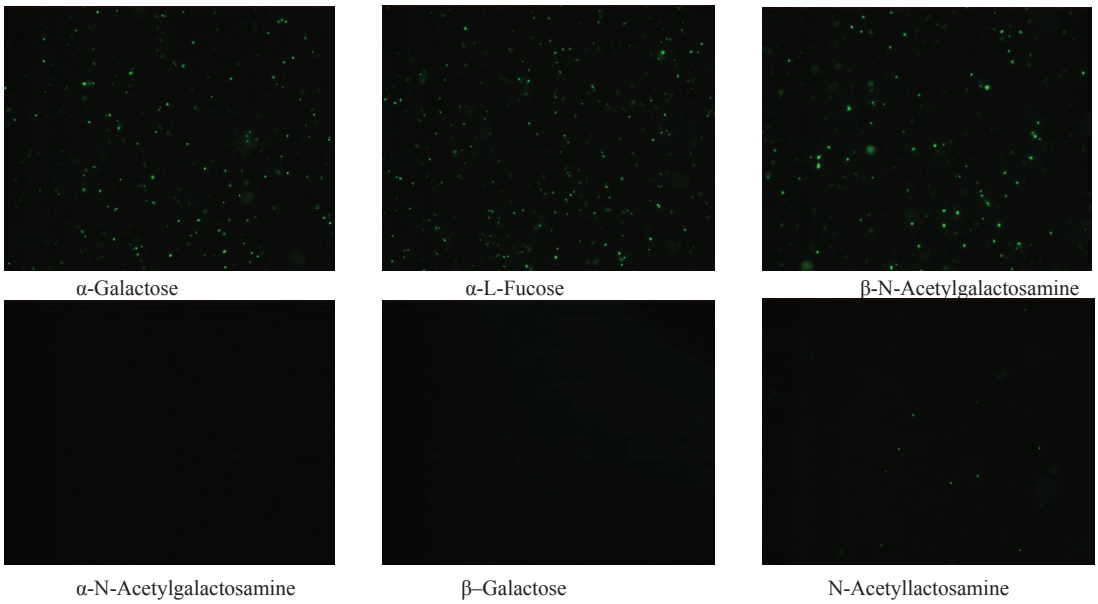
Background: The main clinical feature of cystic fibrosis (CF) is a chronic progressive lung disease caused mainly by Pseudomonas aeruginosa (PA) infection. The mechanism of bacterial invasion is not very clear. It's been shown that PA recognizing specific saccharides through lectins on the airway surface could be the very first step during invasion and infection. This project aims to conduct a comprehensive analysis of saccharides that could bind to different PA isolates from CF patients. **Methods**: We chose nine monosaccharides that were common on human airway surface to test the binding with14 strains of PA (4 laboratory strains, 10 clinical isolates). The sugars were in the form of polyacrylamide (PAA) conjugates (sugars-PAA-fluorescein); polyvalence of sugars could increase the binding affinity and mimic the physiological situation to some extent. Results were attained by fluorescence microscope and microplate reader. **Results:** Among those nine monosaccharides we tested, three (α-galactose, α-L-fucose, and β-N-Acetylgalactosamine) showed strong bacterial binding, and two (α-N-Acetylgalactosamine, α-N-Acetylneuraminic acid) could bind weakly (examples shown below). All 14 PA strains tested showed the same binding pattern. **Discussion:** In this study, we didn't observe strong PA binding with N-Acetyllactosamine or β-galactose, both of which were suggested in the literature to be able to bind; also we found a very similar binding pattern among PA strains, which is contradictory to what has been reported. Considering that the test conditions we employed is closer to true physiological situations than in reported investigations, it's proposed that the current results reflect the etiological process better.



P. aeruginosa PAO 1 showed binding with different PAA-Fluor-Sugars (8μg each). Pictures were taken with Nikon E600 using FITC filter, magnification 20.